



## WOMEN IN SUSTAINABLE DEVELOPMENT: SCIENCE AND QUALITY EDUCATION

### 3<sup>RD</sup> INTERNATIONAL CONFERENCE



## FAN VA INNOVATSIYA O'ZBEKISTON RESPUBLIKASIDA BARQAROR IQTISODIYOTIY RIVOJLANISH OMILI

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**Kalit so'zlar:** innovatsion rivojlanish omillari, innovatsiya, innovatsion rivojlanish, milliy innovatsion tizim, ilmiy-texnologik soha

**Annotatsiya** Globallashuv jarayonlarining chuqurlashuvi sharoitida mamlakatning roli va o'rnini tobora ko'proq iqtisodiyotning milliy raqobatbardoshligiga, shuningdek, ilm-fan va innovatsiyalar sohasi samaradorligiga asoslangan barqaror iqtisodiy rivojlanishga bog'liq bo'lib, bu esa o'z navbatida milliy iqtisodiyotni rivojlantirish tamoyillariga bog'liq innovatsion tizim shakllantirildi. Milliy innovatsion tizimning (NIS) bir necha turlari mavjud. Maqolada keltirilgan taklifning xulosalari, tavsiyalari innovatsion faoliyatni amalga oshirish uchun qulay institutsional sharoitlar yaratishga qaratilgan samarali siyosatni amalga oshirishda foydalanish mumkin: ilm-fanning davlat sektorini isloh qilish, mahalliy fanni tijoratlashtirish darajasini oshirish, kichik innovatsion korxonalar faoliyatini rag'batlantirish.

## SCIENCE AND INNOVATION IS A FACTOR OF SUSTAINABLE ECONOMIC DEVELOPMENT IN THE REPUBLIC OF UZBEKISTAN

**Key words:** factors of innovative development, innovation, innovative development, national innovative system, scientifically technological sphere

**Annotatsion:** The country's role and place in the context of deepening globalization processes increasingly depends on the national competitiveness of the economy and also sustainable economic development, based on the effectiveness of the science and innovation sphere, which in turn depends on the principles on which the national innovation system is formed. There are several types of national innovation system (NIS). Conclusions, recommendations of the proposal presented in the article can be used in the implementation of effective policies aimed at creating favorable institutional conditions for the implementation of innovative activities: to reform the public

sector of science, increase the level of commercialization of domestic science, to stimulate the activity of small innovative enterprises.

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## НАУКА И ИННОВАЦИИ – ФАКТОР УСТОЙЧИВОГО ЭКОНОМИЧЕСКОГО РАЗВИТИЯ РЕСПУБЛИКИ УЗБЕКИСТАН

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**Ключевые слова:** факторы инновационного развития, инновации, инновационное развитие, национальная инновационная система, научно-технологическая сфера.

**Аннотация:** Роль и место страны в условиях углубляющихся процессов глобализации все больше зависят от национальной конкурентоспособности экономики, а также устойчивого экономического развития, основанного на эффективности научно-инновационной сферы, что, в свою очередь, зависит от принципов, на которых строится национальная экономика. формируется инновационная система. Существует несколько типов национальной инновационной системы (НИС). Выводы, рекомендации предложения, представленного в статье, могут быть использованы при реализации эффективной политики, направленной на создание благоприятных институциональных условий для осуществления инновационной деятельности: на реформирование государственного сектора науки, повышение уровня коммерциализации отечественной науки, на стимулировать деятельность малых инновационных предприятий.

The developed processes of globalization have led to comprehension of that pledge of successful modernization of economy is constant innovative updating. As is known, the innovation is a result of innovative activity; innovation introduction (new goods, services, new technologies) reduces costs counting on unit of utility and leads to structural shifts. Problems and difficulties which stood on a way of innovative development of the country have been connected by certain isolation of scientific researches from needs of manufacture, absence of effective mechanisms of stimulation of innovative process.

There is a certain innovative potential in Uzbekistan for which it is necessary to have high level of developed innovative infrastructure, efficient technological policy of the state, free market of competitive innovations and substantial investments. There is a need for intensive and coordinated efforts of the state, scientific and technical and enterprise structures to make up for lost time and leave

on level of modern technologies. Nowadays the main and the sharpest problems are enhancement of efficiency of use of research and development projects, manufacturing application of results of fundamental and applied researches, i.e. it is necessary to establish own innovative centers, national innovative system (NIS).

## **FACTORS AND CONDITIONS FOR INNOVATIVE DEVELOPMENT**

For the estimation of innovative potential following indicators are considered: 1) the personnel occupied with research and development (R&D), and the number of scientific institutions; 2) expenses for technological innovations; 3) the number of higher educational institutions and students in them; 4) number of inventions and registered patents; 5) the number of post-graduate students and an expense for research and development.

Table 1. INDICATORS OF DEVELOPMENT OF INNOVATIVE SPHERE OF THE REPUBLIC OF UZBEKISTAN

	2015	2016	2017	2018	2019
Number of employed of R&D (persons)	36839	36984	36785	37185	31099
Domestic spending on R&D (billion soums), in % (2015 = 100)	1251,8 100	1180,0 94,3	2955,4 236,1	2959,4 236,4	3342,9 267,0
Costs for technological, marketing and organizational innovations (billion soums), in % (2015 y. = 100)	5528,3 100	2571,4 46,5	4162,0 75,3	4707,2 85,1	6603,5 119,4
Inventive activity rate (number of domestic patent applications filed, per 100,000 population)	189 0,61	243 0,77	296 0,92	219 0,88	374 1.09 (58 –Germany, 49-Finland, 46- in Sweden)

Source: The Basic indicators of scientific and technical potential. Bulletin of State Committee of the Republic of Uzbekistan on the statistics for corresponding years; WIPO Statistics database 12/2019

The figure of the number of people involved in research and development is significant for patent, export, and enterprise activity. As some researchers have proven, an increase in internal expenses for research and development for one percent leads to growth of industrial production on average by 1.21 items [1].As it

can be seen from the table, state assignments for developments in the scientific-technological sphere in the Republic have risen considerably and are directed, first of all, towards the elimination of negative tendencies in personnel preparation and material bases of innovative development. If the number of researchers and developers is taken for 1 000 000 population as it is accepted in international statistics, the following will appear: in the USA – 3,984 persons, Great Britain – 4,108, Germany – 4,355, Japan – 5,195 persons, and in Uzbekistan - 495 persons [2]. This must be due to a number of institutional imbalances. There is a low demand for innovation, a low degree of involvement of domestic enterprises in world markets, mainly focusing on local markets with a lower competitive medium term, with a predominance of non-economic barriers to entry into these markets and with a corresponding limited initiative for long-term investments in innovations and technologies and, therefore, more than 70% of innovation expenditures come from machines and equipment.

Such indicators are largely due to the fact that the R&D area in the republic is still an institutional model of the Soviet type in its organizational structure and state share. Due to the destruction of applied research and development and the rapid growth of the commercial part in higher educational institutions, only a small part of universities is now involved in R&D.

As part of the ongoing programs of economic modernization in the country, sectoral and regional polarization is decreasing according to indicators of innovative activity. To achieve success, it is necessary to ensure the coordination of innovative strategies of state corporations, budget research institutes, universities and government agencies. Regular monitoring and evaluation of innovative initiatives are necessary, while identifying and disseminating good practices. It is necessary to revise the taxation system of emerging start-up enterprises and the conditions for the transfer of intellectual property rights, taking into account the innovative costs (costs for the development of related

technologies, design, engineering and training) of exporters of innovative products and services.

A special incentive regime for public-private partnerships should reduce the unfavorable business area in combination with high commercial risks associated with innovation and become important tools to ease the conditions for interaction in innovation activities.

To promote links in the university-production chain, it is necessary to widely develop an innovative structure - business incubators, technology parks, engineering centers and centers for the collective use of scientific and technological equipment and scientific and technical information. The state, as the practice of foreign countries shows, should do this on a competitive basis through subsidy programs.

It is important to create a network for promotion of the results of scientific and technical activities in production. Technology platforms based on partnership focus on encouraging communication and pre-competitive cooperation among leading manufacturers, suppliers, research institutes, universities and engineering companies [3]. These platforms operate on the principles of selection among numerous initiative proposals that meet the criteria of clarity of the goals of cooperation, market prospects, and the involvement of key participants in R&D and business.

It is necessary to improve the system of selection and provision of innovative grants, which are given for development work and/or risk research, the preparation of a feasibility study for an innovative project, the patenting of intellectual property abroad and/or in international patent organizations, the purchase of new technologies. Grants are designed to stimulate the development of innovation, based on the introduction and use of high technologies.

## **CONCLUSIONS AND RECOMMENDATIONS**

The analysis of factors and conditions for innovative development shows that in the Republic there is a certain innovative and technological potential,

for the use of which a high level of development of an innovative infrastructure and the skillful technological policy of the state, free market of competition of innovations, and considerable investments are necessary.

On various directions Uzbekistan does not lag behind the world level that facilitates today the science to successfully co-operate with the world community in microelectronics, in the sphere of nanotechnologies and nanomaterials, biotechnologies, and others. However, working in an intensive mode at level of world samples demands both qualitatively and quantitatively to improve major factors of maintenance of scientifically-innovative processes: volumes and forms of financing, the organization of science, its personnel structure, material base, information, and patenting-technical systems, and also orientation R&D to the market of innovations.

Therefore, now for progress in the technical and technology, definition at the state level of priorities of innovative development, and also formation of trust funds of support of corresponding researches and developments is very important. The great value for activation of innovative process in the republic would also have wider use for financing scientific and technical projects of off-budget sources.

Thus, it should be noted that in order to support a scientific technological potential, it is necessary for country to be integrated into formed global economic-technological space that will also promote the reduction of expenses.

The technological infrastructure - the major segment of modern NIS, in the country develops slowly, techno parks should play a considerable role. As it was already noted, there is no present venture financing of innovative activity in the Republic; there is no mechanism of reinsurance of investments. Modern mechanisms of commercialization of technological innovations are in sufficiently extended; the market of innovative production has been established recently. In development and realization of a scientifically innovative policy, the branch approach prevails. The regional, territorial aspect while insufficiently studied



within the limits of a state policy in scientific, scientific and technical and innovative spheres, especially regarding overcoming of non-equal distribution of scientific and scientific and technical potentials on country regions.

Thus, despite of the existence of separate potentially significant and perspective for formation of NIS in the republic, they yet do not carry out the major problem — maintenance of innovative development in economy as a whole. As the made analysis shows at present there is no accurate communication between innovations and economic growth in the country, that is, it substantially remains extensive type and depends on the volumes involved in the turnover material and work force, and investments into industrial economy. Therefore, the major problem now is the integration of science and manufacturing in addition to adaptation of economy to industrially innovative model of sustainable economic growth.

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